

Instruction Manual PC-USB

Electronic Control unit with USB for one LUNT Pressure-Tuner system

The PC-USB is a microprocessor controlled pressure control system for the LUNT Pressure-Tuner (PT) tuning technique. All existing LUNT Pressure-Tuner systems can be retrofitted to the PC-USB controller via an included adapter. The controller can be manually operated, or via a computer by USB connection.



Power connection and charging the internal battery

The PC-USB controller needs 15 V DC. The controller can be connected to a power socket with 100 to 240 V AC by using the included AC adapter. Simply insert the supplied AC adapter into the power connection located at the front of the PC-USB (labeled with "15 VDC").

The PC-USB controller can also operate using the internal battery. If the PC-USB controller is connected with an external power source, the internal battery will start charging and the indicator light "Charging" will illuminate. The battery will also continue charging if the PC-USB controller is off. After a full charge is performed the PC-USB controller should operate for more than 8 hours under normal conditions without external power source.

The charger circuit will stop when the battery has reached full capacity. The AC adapter could also be left in indefinitely if necessary.

Installing the PC-USB controller at a Pressure-Tuner

Remove the black handle from the brass-cylinder of the Pressure-Tuner system at your instrument.



At the front of the black handle you will find a small cover cap with the label “Lunt Solar Doppler True Tuning”. Unscrew this cover cap. Behind the cover cap you will find a screw, remove this screw by using the hexagon wrench that is delivered with the PC-USB controller. Now you can take the piston out from inside the black handle.



Now the new piston with the central hole can be placed inside the black handle. Press the new piston firmly into the handle. Now screw the air pipe connecting sleeve into the front of the handle. This connecting sleeve locks the piston. Screw the sleeve firmly, afterwards the connection has to be airtight.



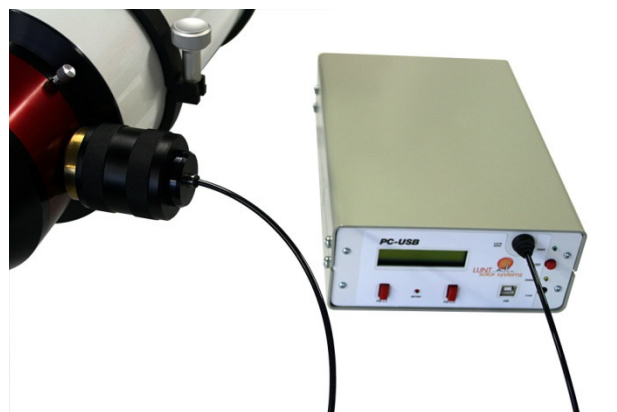
The new cover cap with the central hole can now be screwed on the black handle.



Screw the black handle again on the brass cylinder at your Pressure-Tuner system. Now insert one end of the air pipe into the connecting sleeve at the Pressure-Tuner. Make sure the air pipe is well seated in the connecting sleeve. At the front of the PC-USB controller you will also find a connecting sleeve for the air pipe (labeled “0-25 PSI Output”). Insert the other end of the air pipe into this connecting sleeve at the PC-USB controller.

If you want to remove the air pipe:

To remove the air pipe later press the outer black ring of the connecting sleeve in while pulling the air pipe out simultaneously.



Manually operating the PC-USB controller

Now if all connections are made, the PC-USB controller is ready. Press the "On/Off" button. After a short initialization the controller will evacuate the Pressure-Tuner chamber. This process brings the Etalon cavity to the ambient pressure and insures a correct pressure reading of the chamber. It will take around 30 seconds. The display will show "Evacuating scope chamber" and the needed time.

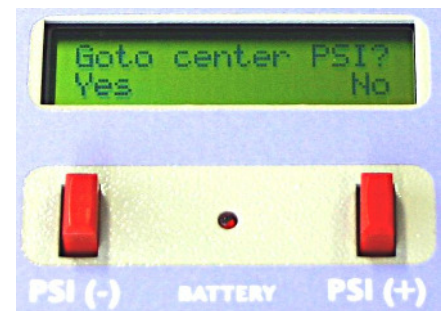


The display will now read the current pressure inside the Etalon chamber ("Scope PSI") and the pressure that is adjusted at the PC-USB controller ("Setpt PSI"). At the beginning both data are at 0.0, and are shown in the unit PSI in steps of 0.1 (0.1 PSI is equivalent to 0.0069 Bar). Now press the "PSI (+)" button, the "Setpt PSI" data will increase. The tolerance of the PC-USB controller is 0.4 PSI. If the difference between "Setpt PSI" and "Scope PSI" becomes larger than 0.4 PSI then the air pump

inside the controller will start. Press the "PSI (+)" button until "Setpt PSI" reads 2.0. The PC-USB controller will pump up the PT chamber to "Scope PSI" 2.0 and stop. If the unit continues pumping then check all connections to make sure they are inserted fully.

If all is okay then you can now tune the system to the H-alpha wavelength. Look through the eyepiece and increase the pressure with the "PSI (+)" button until the prominences and other details will become visible at the sun. Normally the pressure will be then between 10 and 20 PSI. Now you can increase the pressure by the "PSI (+)" button or decrease the "PSI (-)" button in small steps until you have achieved the optimum setting of the H-alpha wavelength, there the most details on the sun are visible.

Once you have achieved your optimum tuning setting you can save it, to reset without waiting. Press both the "PSI (-)" and "PSI (+)" buttons at the same time. "Goto center PSI? Yes / No" will now be displayed. Then press again both buttons and hold it until "Writing center pressure value" is displayed and release. The PC-USB controller will then list center pressure value saved. If you now change the pressure (for example to observe the Doppler effect at a filament) then you can return to the saved pressure setting point at any time you want. Simply press again both buttons "PSI (-)" and "PSI (+)", and at the question "Goto center PSI?" hit "Yes" by pressing the "PSI (-)" button to re-center.



This value will be also stored when the PC-USB controller is switched off. At the next observing session it is not needed to search again the optimal setting with an effort, you can use the query "Goto center PSI?" to find the optimum setting instantly.

When the PC-USB controller is turned off, it can of course remain still installed at the Pressure-Tuner. A new assembly and disassembly is not necessary every time.

Operating the PC-USB controller by computer

The PC-USB can be connected to a computer by a USB cable (USB cable not included). At the front of the PC-USB you will find a USB-B port. At the description of the PC-USB on our homepage you can download the software for the controller (compatible with Windows 7 and higher):

www.bresser.de/en/Astronomy/Solar-Astronomy/Accessories/Electronic-controller-for-Pressure-Tuner/LUNT-PCUSB-Pressure-Tuner-Controller-with-USB.html

Usually operating the PC-USB by computer will work after installing the software. You can click the button "Setup" at the screen window and choose the COM-port if there are any problems.

Operating the PC-USB will work on the same way like it is described at "Manually operating the PC-USB controller". The button "Down" and "Up" correlate with the button "PSI (-)" and "PSI (+)" at the PC-USB housing, the button "Center" correlate with pressing both button "PSI (-)" and "PSI (+)".



Please contact your local dealer or our customer service if you have any questions or problems.

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